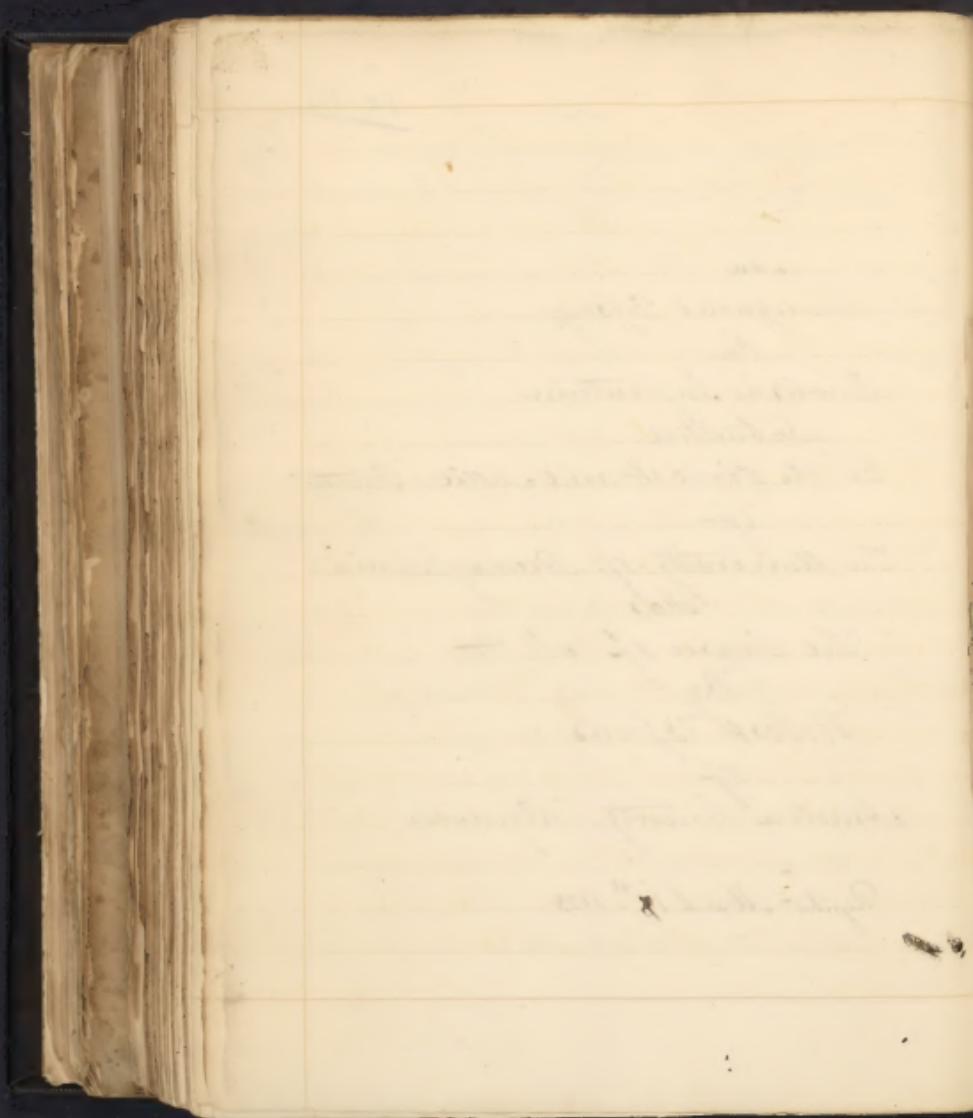


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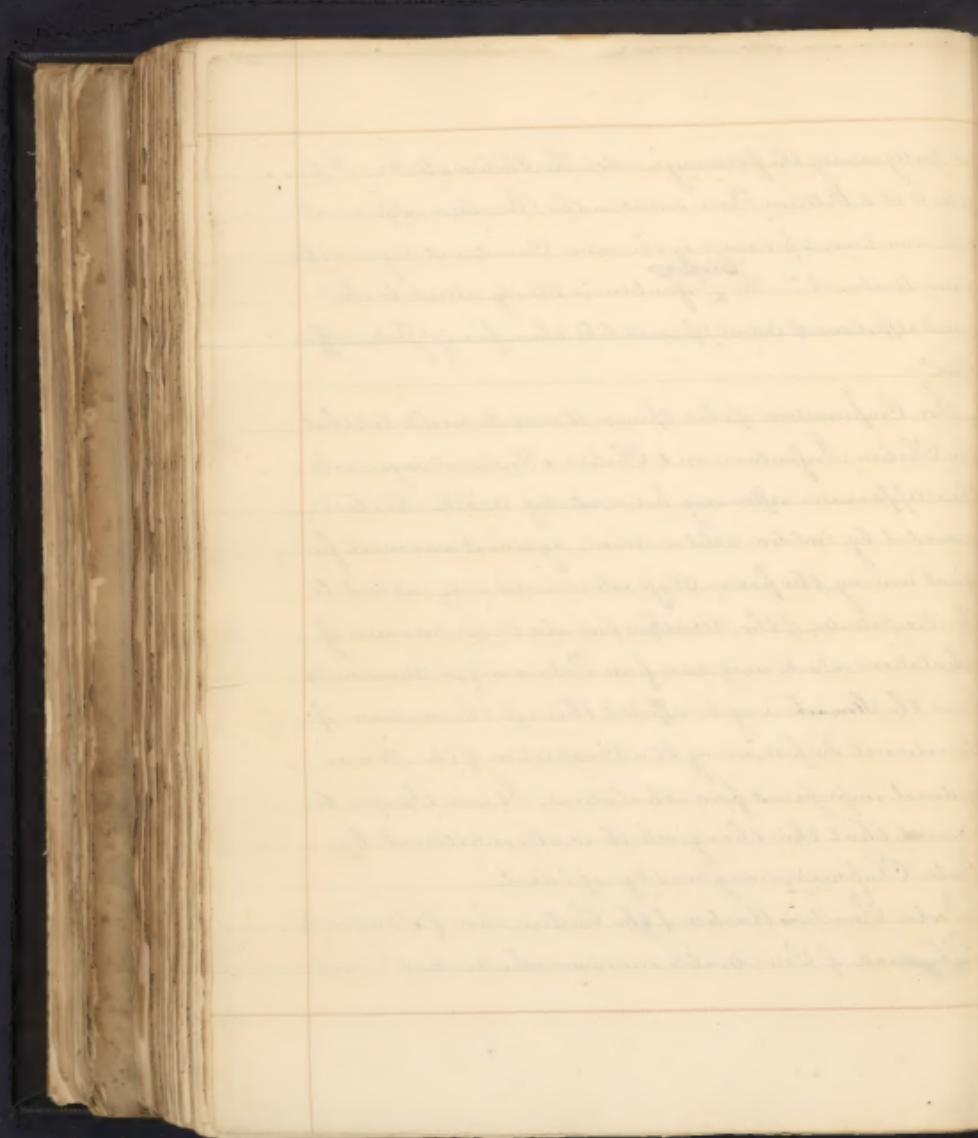
An
Inaugural Essay
On
Cholera Infantum
Submitted
To the Provost and Medical Faculty
of
The University of Pennsylvania
For
The Degree of M. D.
By
Robert B. Jones
of
Amelia County, Virginia.
Rejuted March 18th 1823



on pretty nearly the following words; "The Cholera Morbus I consider to be a fitful Fever settled in the Bowels; it appears at the same time, is produced by the same Causes, and requires the same treatment." The ^{Cholera} Infantum is closely allied to the bowel affections of adult life, and like them purely Gastric Affection!

In Confirmation of this Opinion it will be recollect'd, that the Cholera Infantum and Cholera Morbus, always make their Appearance after very hot and dry Weather has been succeeded by sudden Cold or Rain: again, it was most frequent among the poorer Clas's, who are not only exposed to the Vicissitudes of the Weather, but also to all manner of exhalations, which may arise from Putrescency, or Miasma; hence the Stomach may be affected through the medium of the external surface, owing to a Constriction of the Throat; or by direct impressions from exhalations. It will therefore be perceived that this Theory, which is also entertained by Doctor Chapman, is very readily explained.

Doctor Snellis Martin of the Eastern shore of Maryland, a Physician of Considerable eminence, who has had Consider-

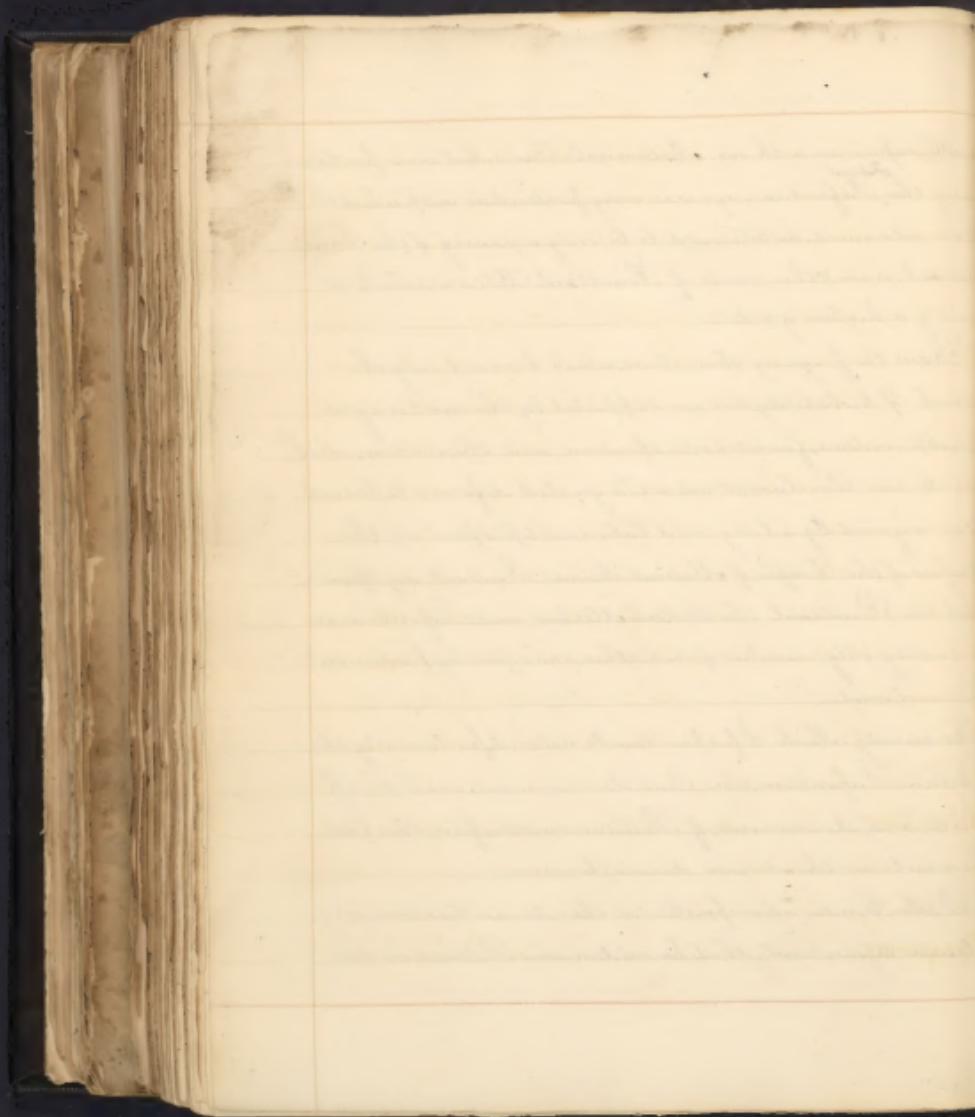


nable experience with our ~~Autumnal~~ ^{Febry} Fever, but more particularly the ~~Infantum~~, agrees in every particular with what I have advanced, he believes it to be only a variety of the Intermittent, or in other words of Remittent Bilious, which is merely a higher grade.

From the foregoing observations, which bear not only the stamp of probability, but are supported by the most unquestionable evidence, founded on experience and Observation, which will be our Conclusion, with the greatest deference to knowledge, acquired by a long and laborious life, spent in the "Temple of Medical Science," I submit my opinion, that the Remittent, the Cholera Morbus, and Infantum are in reality only varieties of each other, modified by particular Circumstances.

The variety which I propose here to notice, is particularly the Cholera Infantum, this consists in evacuations, both upwards, and downwards, of Bilious matter, from this last Circumstance the disease derives its name.

Doctor Condie whose practice in this disease has been very extensive assures us, that he seldom saw Bilious matter

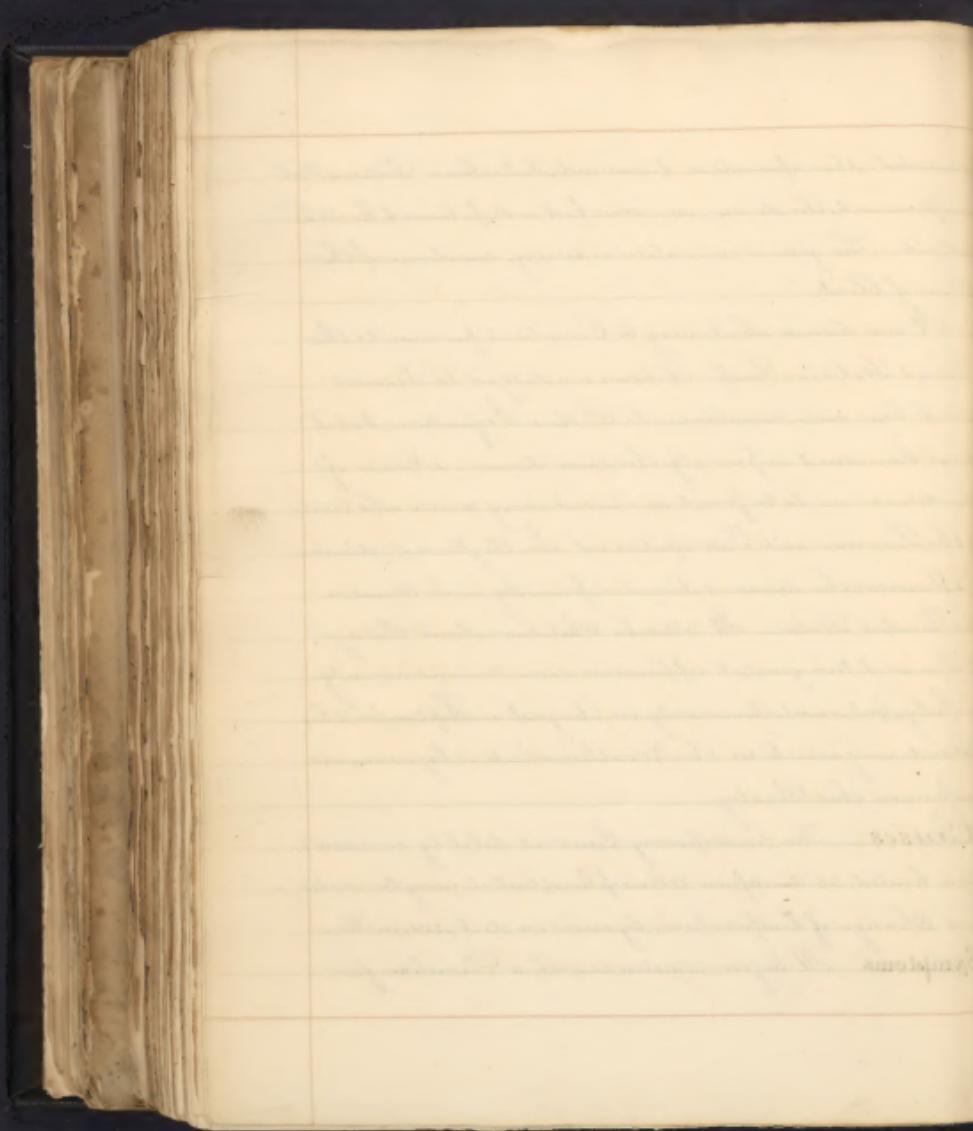


waveated either upwards or downwards, but when a Bilious Stool was produced, the disease was soon put a stop to, and health restored. — The general evacuation is watry, sometimes of the Colour of Blood. —

It is a disease which may be Considered peculiar to the United States; in Europe Children are subject to Diseases which bear some resemblance to Cholera Infantum; but it is not Considered as precisely the same disease. Notices of the disease are to be found in almost every writer who treats of the Summer, and Fall epidemics. In Clyburn's diseases of Minorca, the disease is described precisely as it Occurred in the United States. It attacks Children about the age of One and two years, it appears in some seasons as early as July, but most Commonly in August or September; this depends very much on the Weather, which is by no means uniform in this Country.

Causes — The predisposing Cause is debility occasioned by a heated and impure atmosphere; but it may be excited by a Change of temperature, by errors in diet, &c.

Symptoms — It begins sometimes with a Diarrhoea for



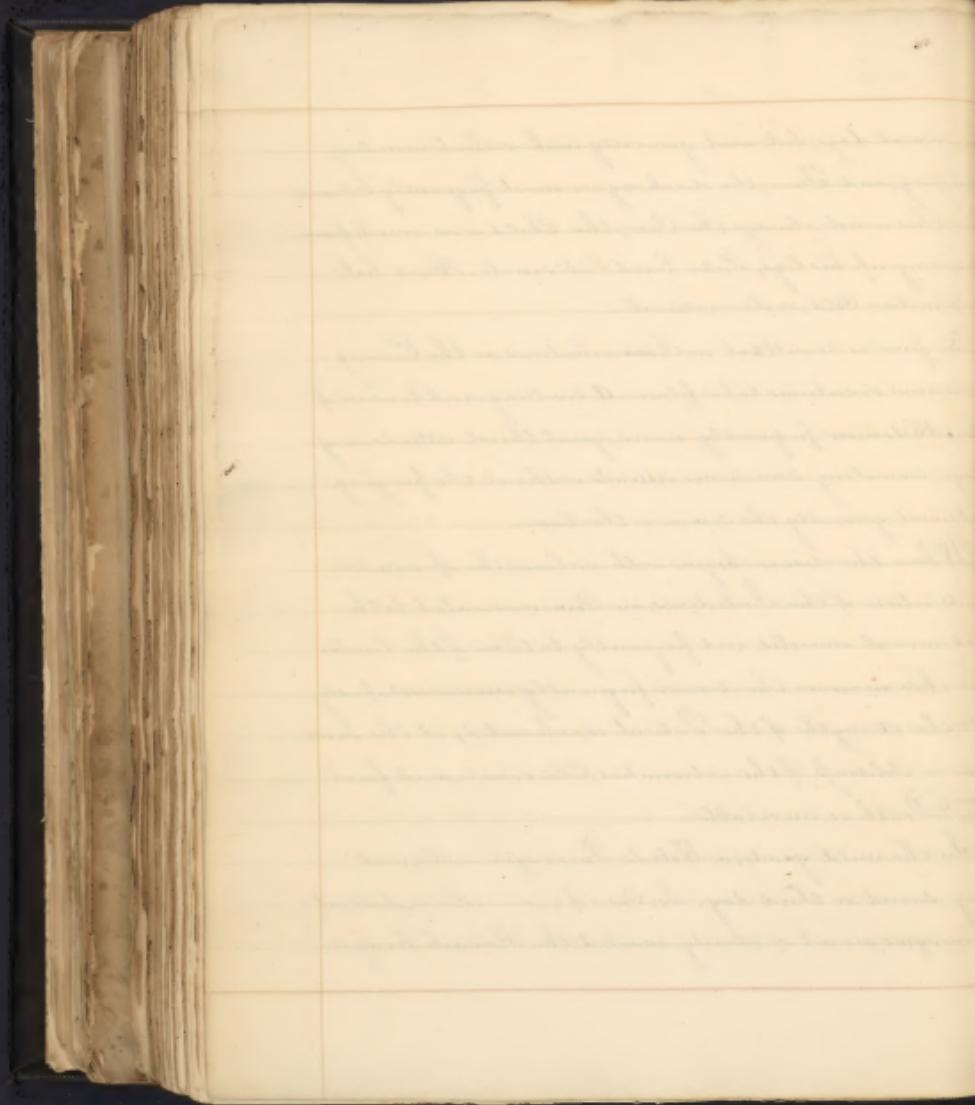
for several days; but most generally with violent vomiting, purging, and Fever; the discharge is most frequently bilious, but this is not always the Case; the Child is in much pain, drawing up his legs; Pulse hard, but small. Head hot; extremities Cold; or else natural.

The fever is remittent with exacerbations in the Evening. Delirium sometimes takes place. A swelling, and tension of the Abdomen frequently occurs, great thirst attends every stage; vomiting sometimes attends without the purgings but most generally the reverse is the Case.

When the disease begins with violence, the spasmotic Contraction of the Intestines, are communicated to the abdominal muscles, and frequently to those of the limbs. In this manner the disease frequently increases rapidly till the strength of the Patient is exhausted; at the same time a Coldness of the extremities, Cold sweat, and faint

^{Cramp} Death is inevitable.

In the mild grade, a Febrile Paroxysm is observed every second or third day. In Cases of more violence, distinct Paroxysms are not so clearly marked, the Stomach being so



Constantly disordered." (Doctor Martens Letter)

Another symptom not before mentioned has been observed in the suburbs of this City, it is the pulse, which was extremely small, and at the same time as hard as a wire. The emaciation of the Patient is extreme leaving little but the flaccid skin, upon the Bones of the Infant. the emaciation takes place very rapidly.

Prognostics. A very frequent and depreſed pulse and want of Strength; dullness of the eyes, insensibility, frequent sighing, slow respiration; Clammy Cold sweats, are the precursors of 'Pipolition'. To these may be added: "Deadly nausea, and an unquenching Relishing to eat something from the Stomach without effect, an emaciation of the Body, livid spots &c" (Doctor Martens Letter)

"An exorbitant discharge both upwards and downwards; fainting, hiccups, Convulsions, Coldness of the extremities, Cold sweats, a small intermitting pulse, and the Continuance of the other symptoms, after the loosening and swelling have ceased; are mortal signs."

But there are hopes of recovery if the vomiting stops



Sleep succeeds, and the Patient appears to be relieved; and
also if the disease be protracted beyond the seventh day"
(Sydenham)

Treatment. "Whenever a Child in the Autumnal Season is taken with Nausea, and vomiting, and exhibits symptoms of approaching Fever; as a dry and hot skin, and quickened pulse; we may consider the *Cholera Infantum* as having commenced, and instantly prescribe for a Child, say two years old, Colonel H. G. 3
to be repeated the next day, unless some symptom fails it. If this is done before a Complete paroxysm of Fever has taken place, it generally arrests it; but if otherwise it has the happy effect of Obviating for the present, all affections of the Stomach and Bowels."

(Doctor Martin's Letter)

We are seldom called however before the Disease is
Completely formed; then becomes necessary to pursue
a different Course of practice; our first object in this Case
is to allay irritation; this being done, we should resort
to evacuants. -



8
To meet the first indication the Steam bath and Antispasmodic
Injections stand prominent. Linapounds, Cloths wrung out
with Spirits, with Spirit Oil are beneficial.

As an injection the following is recommended -

17 J. Opil - 6 H. ~~St~~

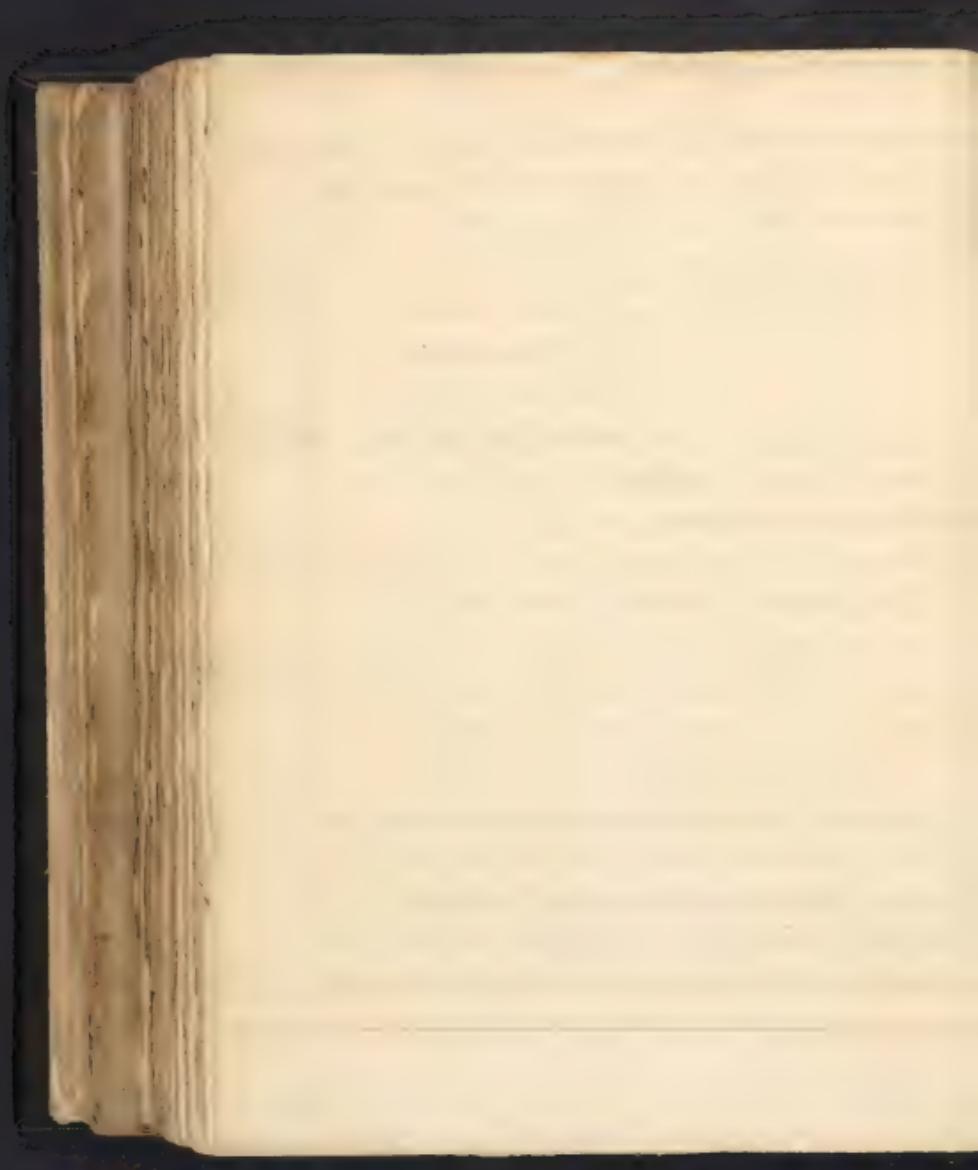
Gum Arabic 3 ij

Aqua Spud 3 ij M. f. Enom:

Asperg. prof. nato.
The internal Remedies are Opiates - Spirit Oil Combined
with Cinnamon draught &c.

The following has been used with success in this City case
not the vomiting - Ag: Pure 16 i. Cub. Solts 3 i - Spirit Oil
ijs. - cyp. monch 3 pt. M. Cap: Cookt: May: on 3rd wth 4th hore

The disease is most generally ushered in with a hot shen;
Pulse irritated and quick, great thirst, and pain about
the umbilicus; Bleeding is then most impudently demanded
during the first Summer I have every reason to believe
that but very few Cases occurred, where the lancet was not
called for - when however acute inflammation is not
present we have the experience of Doctor Chapman to
justify the use of Ipecacuanha as an emetic evacuates



swis a tonic to the System, equalizes excitement, and determines to the skin.

Having thus prepared the Stomach for the reception of its wants we may give O. Ricini & opium with this not a very young Child Calomel either alone or Combined with Opium; it may be made into Pills with Conserve of Roses by mixing Calomel G. x to Opium G. ii to be divided into Ten Pills, one to be taken every half hour.

After evacuations have been frequent considerable irritation generally remains, we must therefore endeavour to Calm irritation, and determine to the Surface with this Object in view the following is recommended.

of Calomel	gr. ii
Opium	gr. i
Opium	gr. iii
Conserve of Rose	gr. i
• M. f. Ric. viij	

et capiat, omni quarta hora inde

When the pain and irritation are violent, we may increase the Opium, or resort to Anodyne Injections, this speedily Calms



the Stomach after which the other symptoms will generally sub-
side -

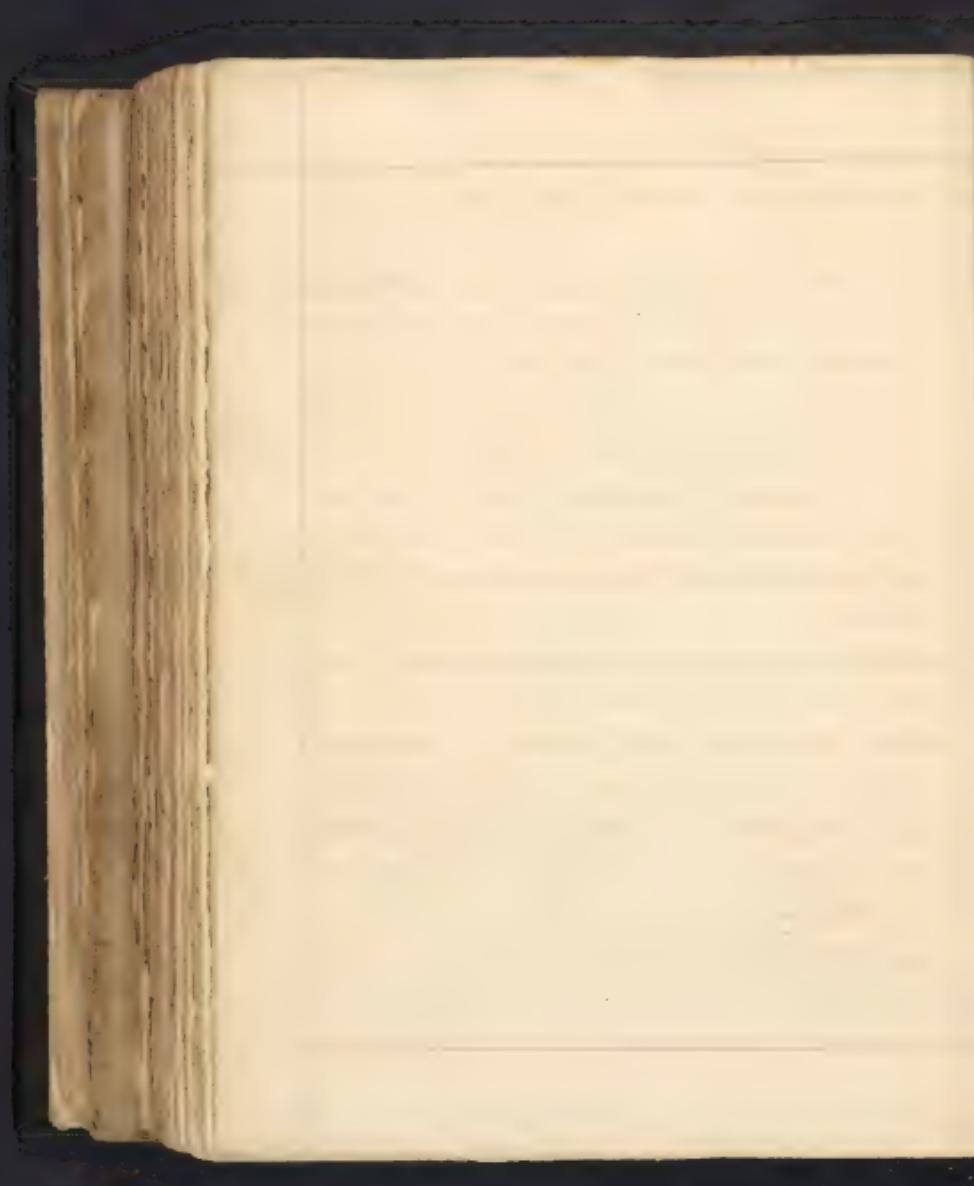
If there is not an equal Temperature diffused over the Surface, -
the Warm bath will be proper to equalize excitement, Salt & Sul-
phur or Brandy may be added if great debility is present -

Unless pain, a small and corded pustle, a tense and hot ⁴⁶
demon undulate danger of Inflammation, blisters will not be
necessary; but under the above Circumstances they are indis-
pensable, a good application to the Stomach to stop purging
is Sol. Alum. steeped in hot Water and applied as hot as
can be borne -

Such is the treatment which has been found to be most successful
in subduing a disease, which in point of mortality acknowledges
no Superior "No distemper" says Sydenham "is as destructive
as the Cholera, except the plague or some pestilential fever -

It may perhaps not be amiss to sum up in a few words the
practice observed by Doctor Charles D. Meigs of this City, who
it would appear has been very successful; as it is in some
manner different from the preceding treatment -

Doctor Meigs states that after the Intestines have been

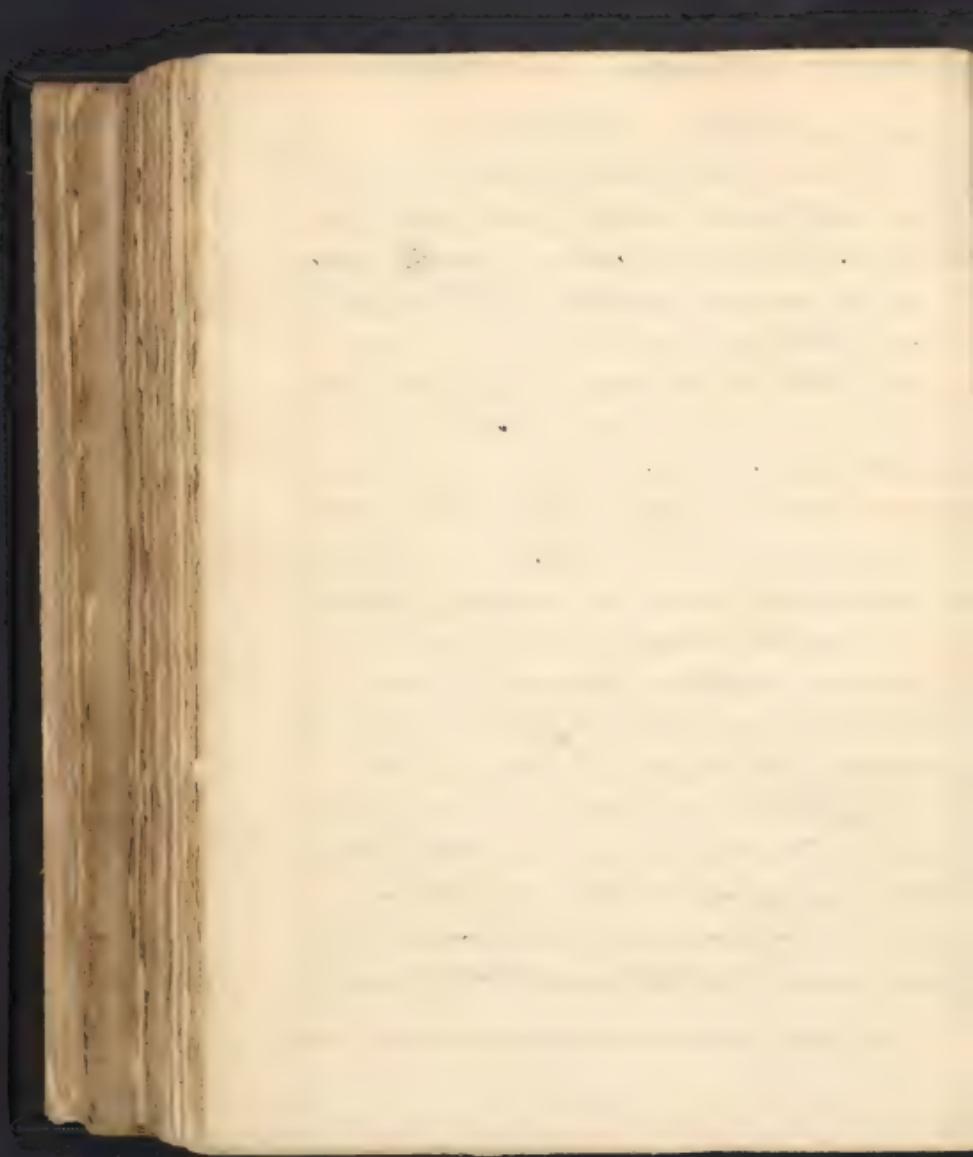


Cholera Infantum.

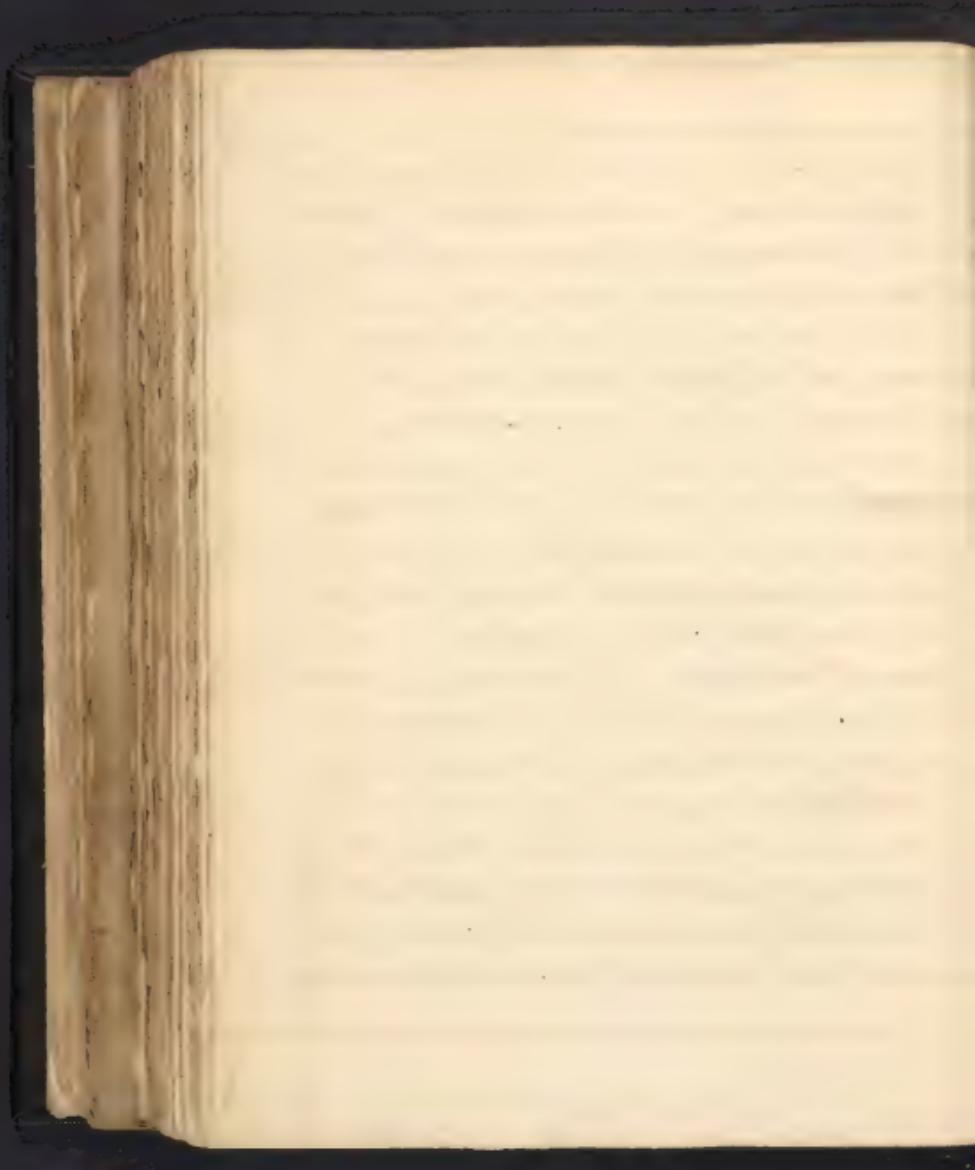
By Cholera Infantum is understood in the United States, the vomiting, and purging of children. From its almost uniformly occurring in the summer months in Philadelphia. It is frequently, and especially by the vulgar, denominated the disease of the season, or the summer complaint. Dr Rush has asserted, that Cholera Infantum never makes its appearance in Philadelphia until the middle of June, or 1st of July; and generally continues until about the middle of September. Were this disease as much confined to the summer months in other climates, as it is in this, it might with very great propriety be denominated the summer complaint.

But in ^{Bladotown} Boston its manifestations are announced in April and May; and hence the appellation of the name of April and May disease.

It appears to be the same disease, which Dr John Evans has named *Atrophicae Atactatarum*, be-

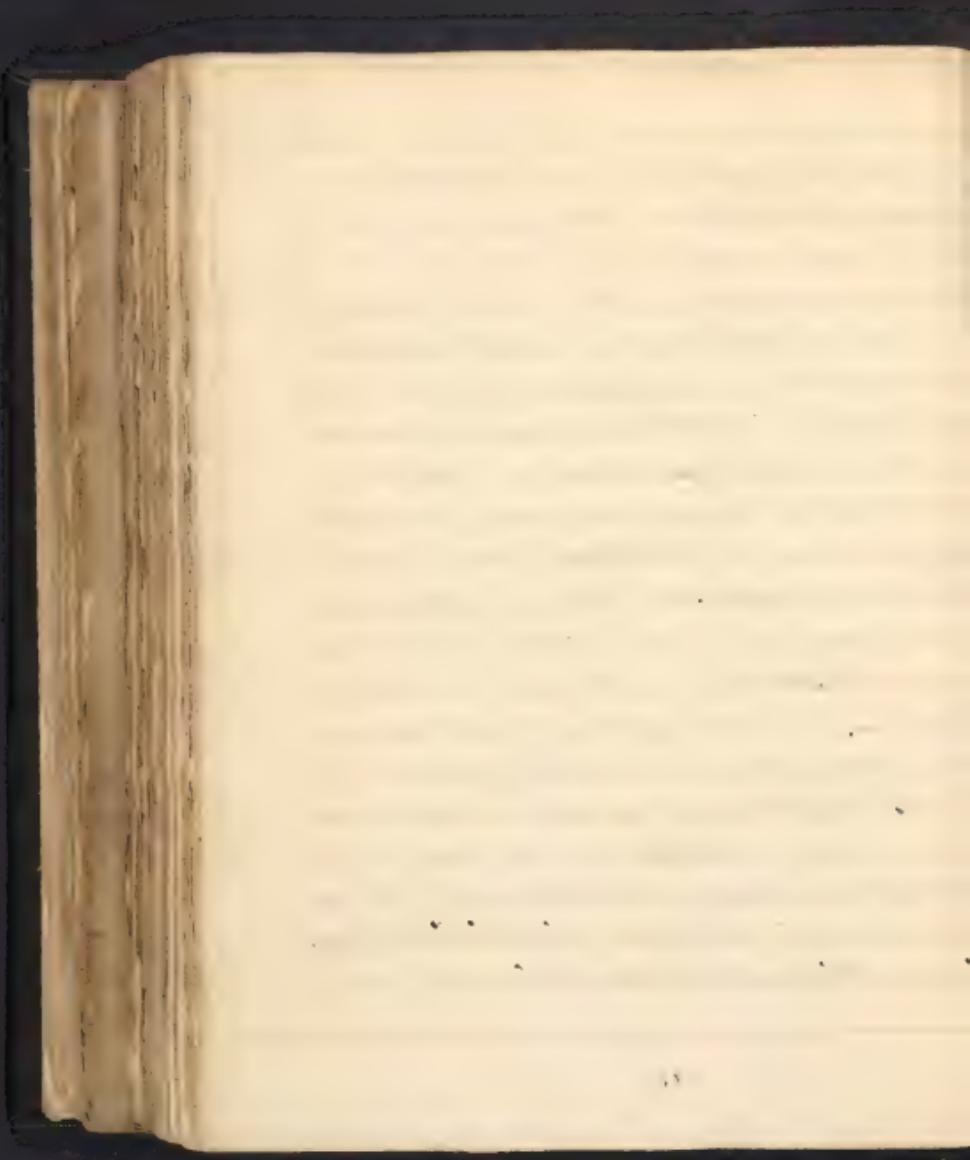


is merely a Latin translation of weeping brook,
the vulgar name, by which it is known in Scotland.
The phenomena of the disease as it appears in
the two countries, are not, however, precisely similar.
But this is not expected to be the case in a disease
depending so much on climate; nor is there a
greater dissimilarity in them, as described by Dr
Chyne and Dr Chapman, than we might expect
~~from~~ from the difference in the climates; espe-
cially when we see how much the disease among
us depends upon temperature. I conceive their opin-
ions receive a strong confirmation from the obser-
vations of Dr Chyne. The variation of the
Inflammation he says is varied by the seasons of the
year, and by the changes in the temperature of
the weather. A cool day frequently abates its violence
and disposes it to a favourable termination.
the great variety of the climate of Great Britain
we should expect would render its occurrence less
frequent and less confined to particular seasons.



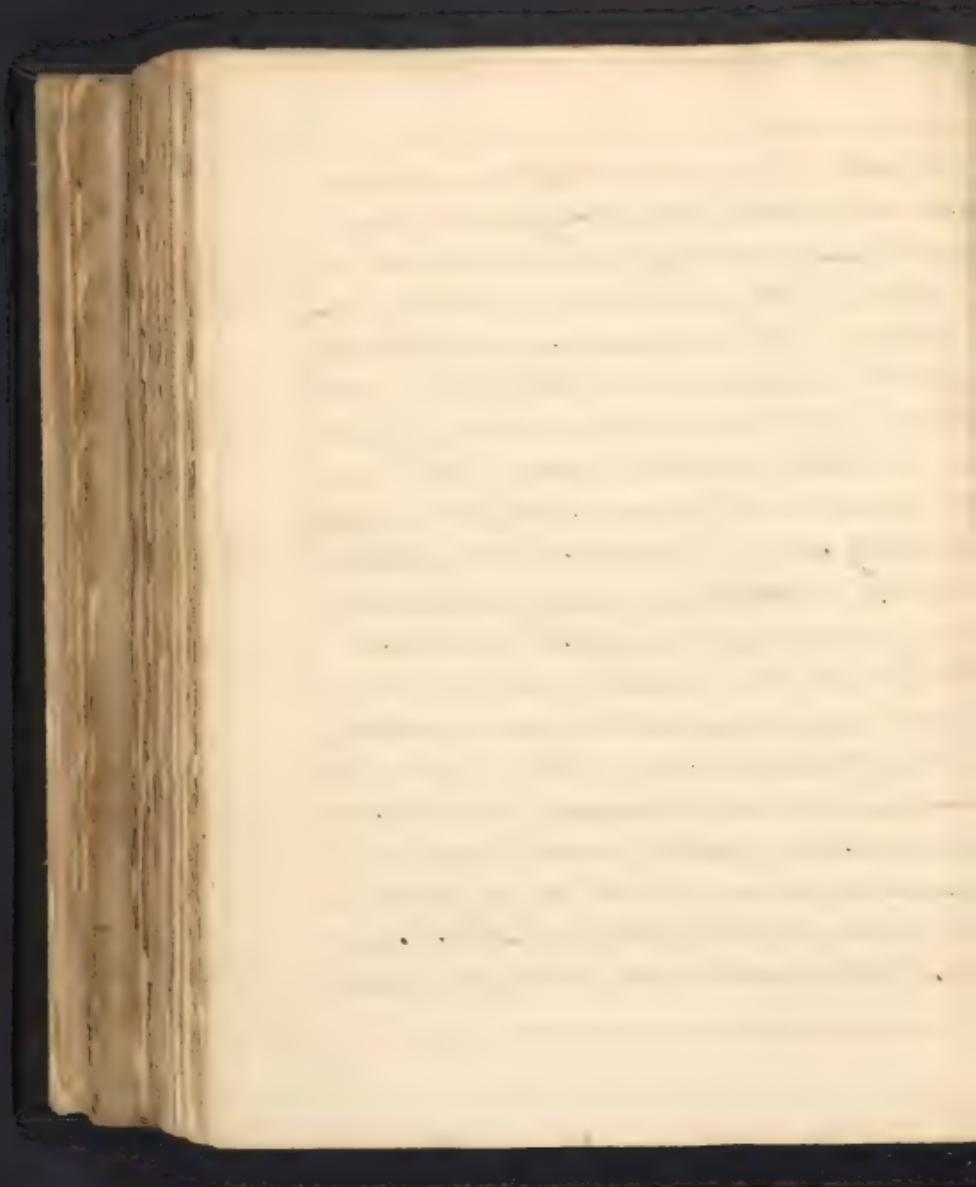
its symptoms less violent, and more tractable, and
its progress less rapid, even when advancing to a
less unfavourable termination.

We have already shown, that in Philadelphia
it is a disease of the summer months. Dr. Sydenham
considers it to be generally a disease of the autumnal
months in Scotland. He says he has seldom
seen it commence before the summer solstice, or
after the end of the year, being most prevalent in
sickly seasons. In his treatise on this disease he
has published eleven cases, three of which commence
in May, one of them as early as the 6th; and
one case which commences about the middle of
November. The dates of these do not correspond
exactly with the limits he has assigned, but
they show that the period of its prevalence is about
twice as long in Scotland as Dr. Rush has ap-
pointed to it in this City. In that country the dis-
ease is seldom fatal within the 6th or 7th week,
but in Philadelphia the disease is sometimes

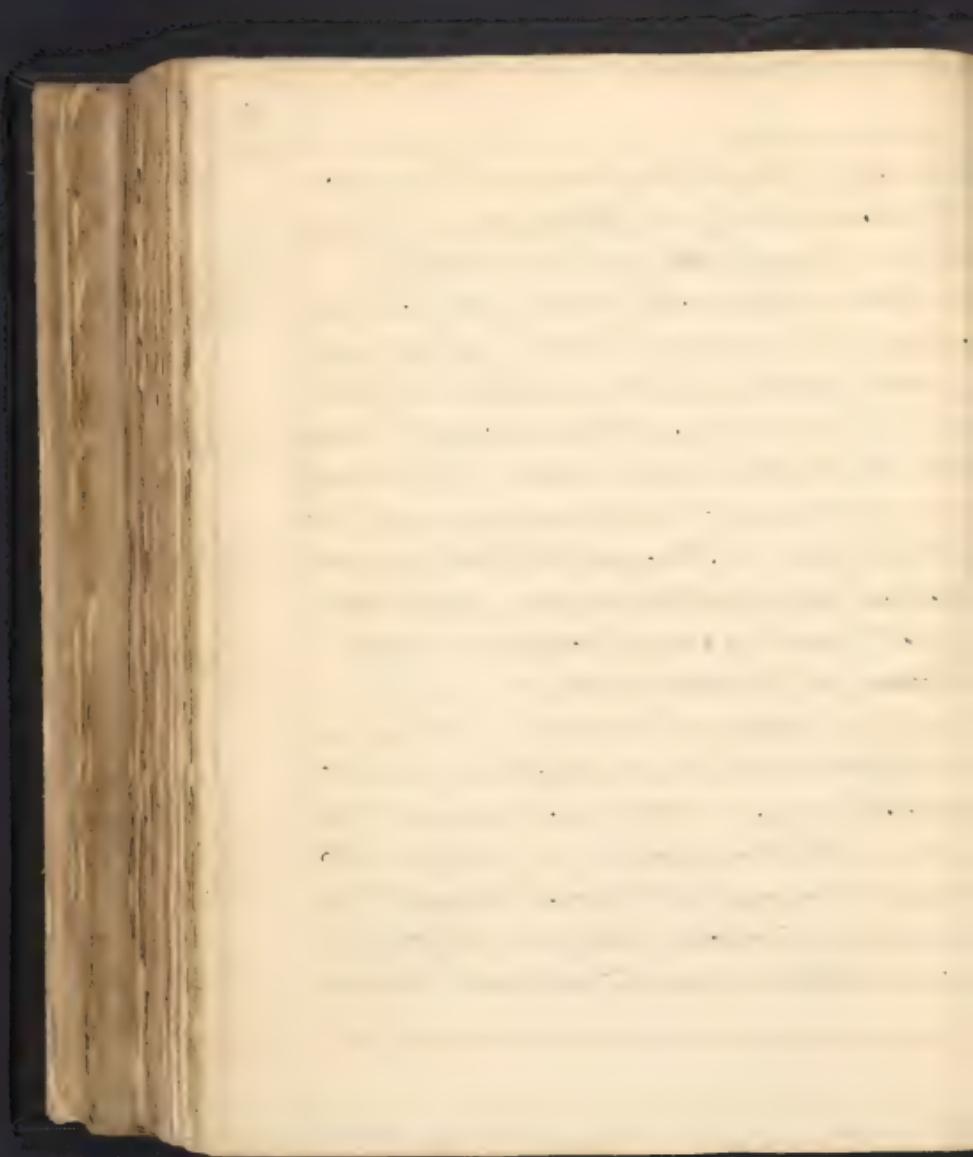


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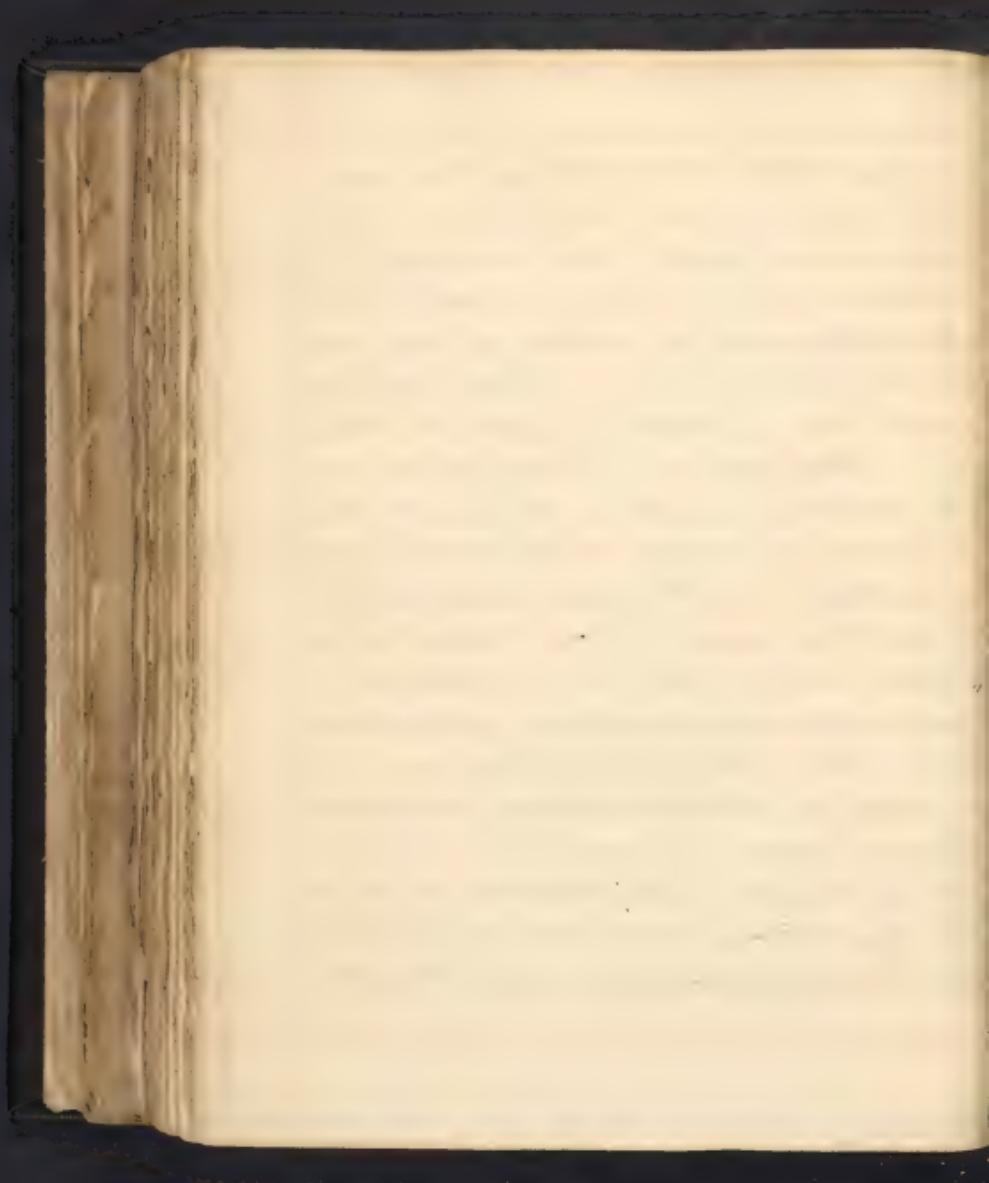
fatal within a few days, and Dr Chapman has seen
a case where it terminated fatally within twenty
four hours. Of these differences in the disease, as
it appears in the two countries, we shall say more
presently. The predisposing cause of cholera
infantum consists in the irritability induced by
the irritation of the heated and impure air of large ci-
ties. The heated atmosphere probably produces some
disengagement in the functions of the biliary appa-
ratus, thereby changing the character and quantity of
the bile. This irritability is generally strengthened by
the very common known effects of a tropical
climate upon this apparatus. The principal ex-
isting causes are: improprieties in diet and clothing,
especially the abrupt change from breast-milk
to common food, and at a season when the chyl-
octic viscera possess the greatest irritability.
It is also brought on by sudden changes in the humi-
dity and temperature of the air or other circum-
stances, that would suddenly obstruct perspira-



tion. Among improbabilities of Olear, Dr. Rush reckons the various kinds of fruit. This opinion has been contested, but it is supported on the best authority. Denitrition has been reckoned among the exciting causes of this disease; But as it appears only in warm weather when there are other exciting causes of this disease, and as there are no cases of it connected with denitrition in cold weather, these circumstances would seem to furnish an argument to refute the opinion. This argument however, is not conclusive for why should denitrition, more than the other exciting causes produce the disease.



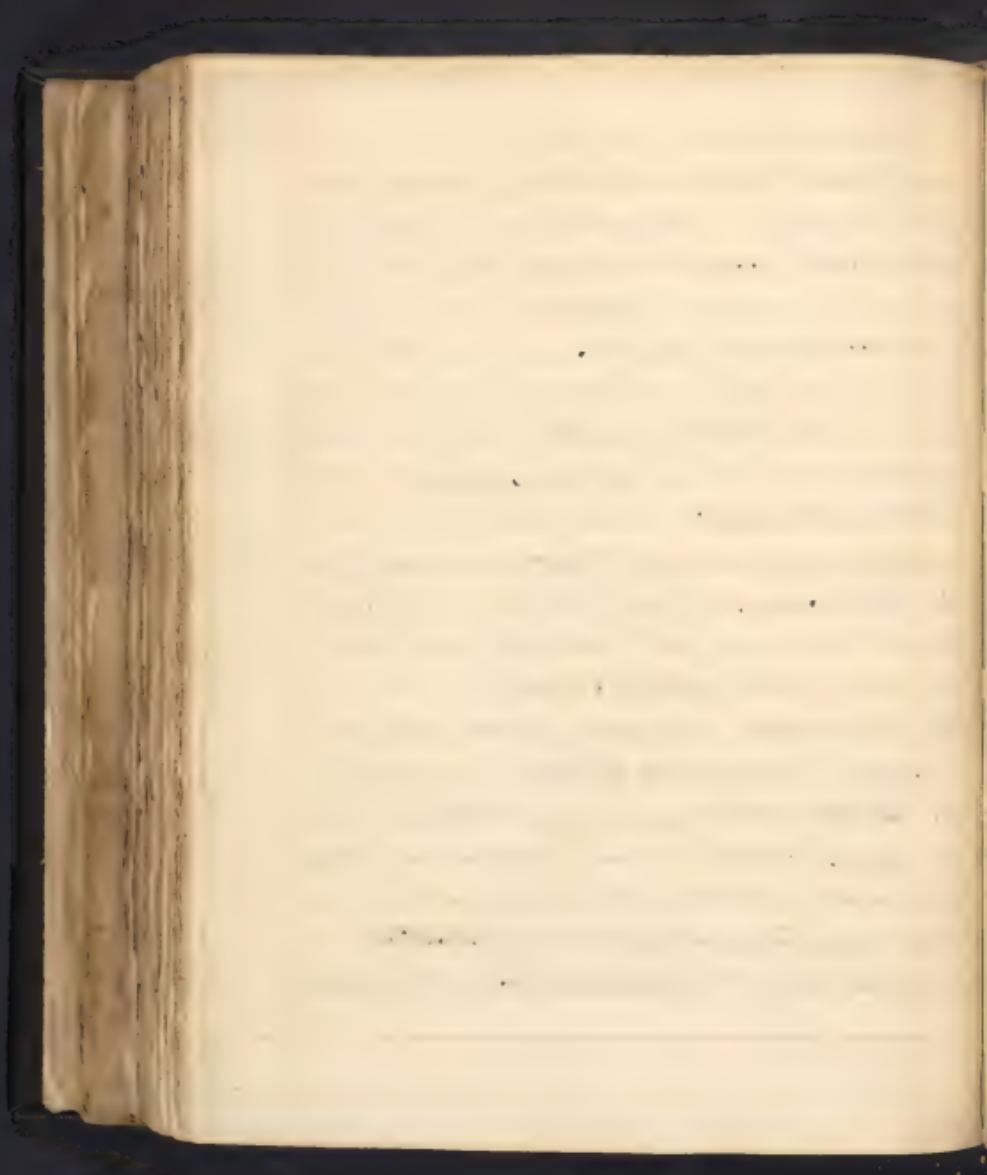
me, it is probable, that dentition sometimes causes and often aggravates the disease. As cases of this disease occur, in which worms are discharged in considerable numbers, it has been attributed to these also. But as there are cases, where *Cholera Infantum* has assumed the most malignant form without the sign of a worm; and in these cases where worms are concomitant, exhibit no unusual malignancy, it is probable the disease would seldom occur without the aid of some other exciting cause. This is one of those diseases upon which much light has been thrown by post-mortem examinations. But it seems to have been investigated little or none until Dr. Bayne attempted it some more than twenty years ago. Previous to that time, he tells us the disease was not known to the English Physicians. He says some of them had named a purging as a very common symptom



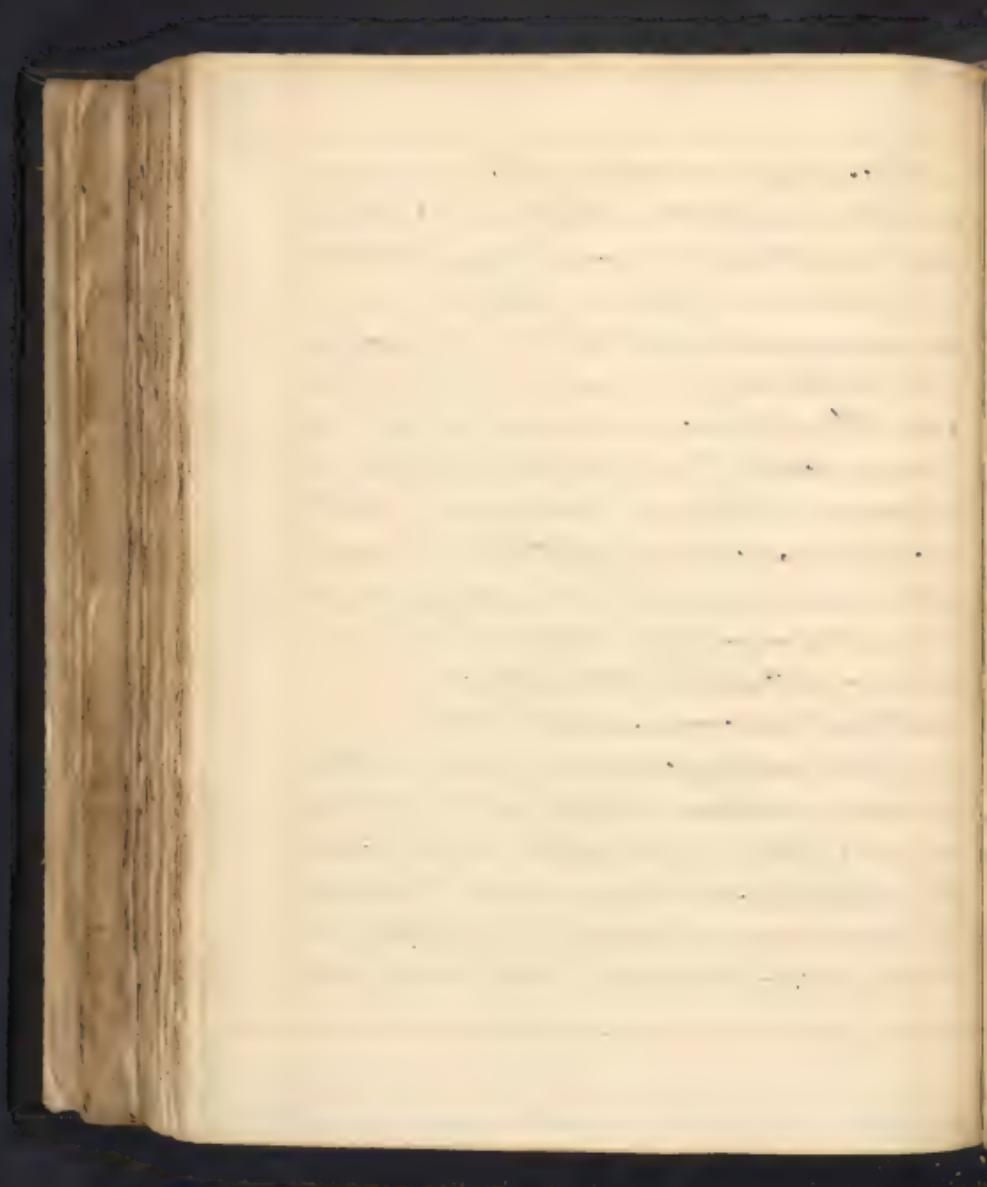
ce of excrements; But they supposed that it arose from a mesenteric enlargement in serofulness. Dr. Colson's ^{at first} last opinion he entertained, until dissections gave him different views. The morbid appearances in dissections are confined to the abdominal cavity. & none are discovered in the contents of the cranium or thorax. Dr. Brown says "he observed in every instance, that the intestinal canal, from the stomach downwards, abounded with singular contractions, and had in its course one or more intussusceptions; that the liver was exceedingly firm, larger than natural, and of a bright red colour; And that the enlarged gall-bladder contained a dark green bile. In some dissections the mesenteric glands were swelled & inflated; in others, however, they were scarcely enlarged, and had no appearance of inflammation. On this country, according to the observations of Dr. Chapman, the morbid appearances denote, as we might expect



more violent action. Marks of previous inflammation may be seen in the whole extent of the alimentary canal, confined principally to the mucous membrane. Dark livid spots are to be seen on this coat in the stomach and small intestines, but particularly in the duodenum. The jejunum is particularly affected, but the morbid appearances on it are not considerable. The hepatic apparatus is much enlarged, the liver being very generally if not universally enlarged, and considerably altered in its condition. It is very often indurated but more frequently it is soft and flabby in its texture. The gall bladder is usually filled with bile variously titrated and altered in its nature. In Scotland the disease is generally slower in its progress, it there is more of a chronic nature, we should examine upon finding the liver there more frequently and firmly ~~altered~~ indurated, and might expect also to find as we do



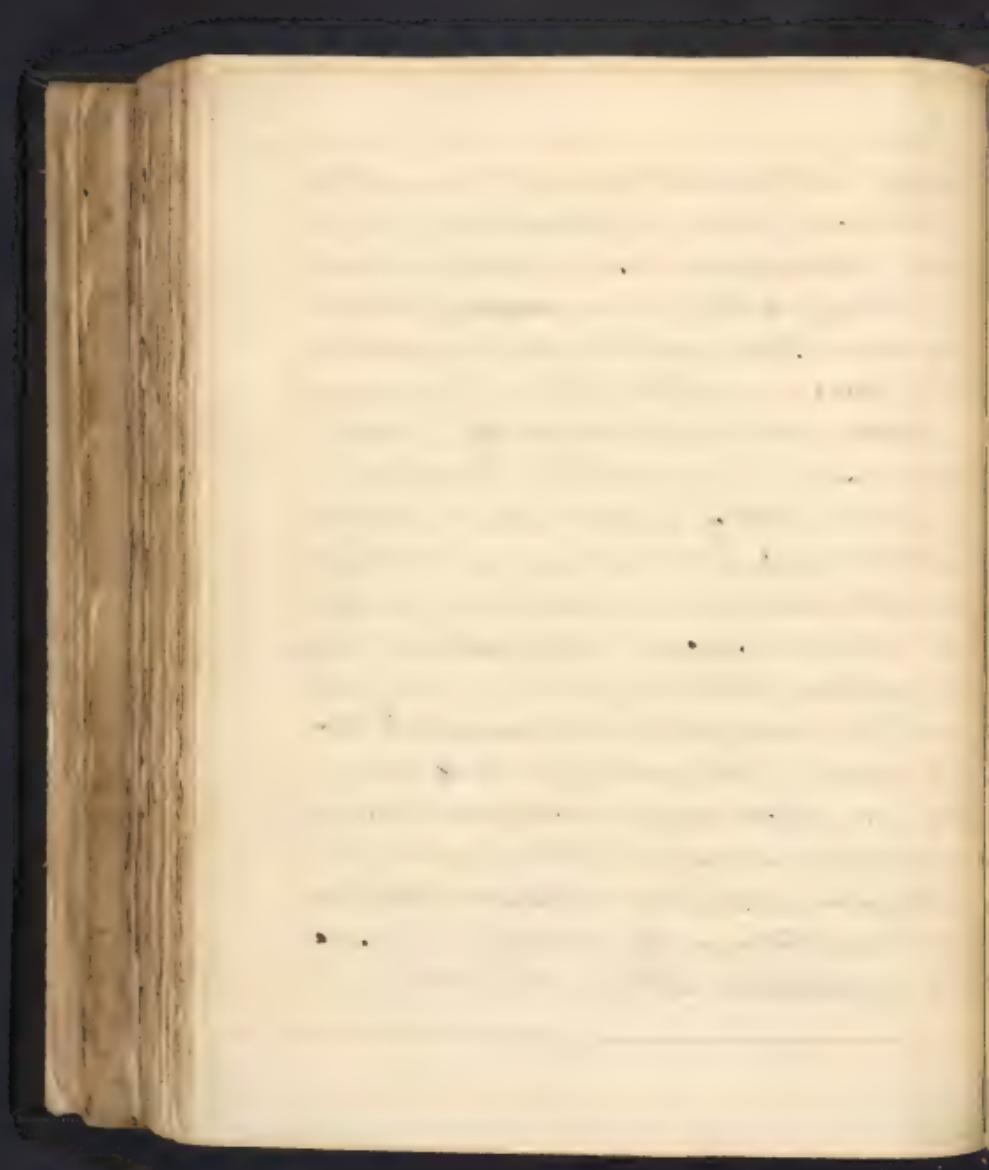
in this country more evident marks of inflammation. From investigations Dr. Chyne and Dr. Chapman are both led to the conclusion, that cholera infantum is a gastric affection in its commencement, and that the hepatic system is sympathetically drawn into a state of disorder. The difference in the disease, as it appears in Scotland and the United States, seems to consist in this; in that country the predisposing cause acts so feebly, that the disease will be produced only when the exciting cause acts most powerfully. And as the abrupt weaning of the child, that is, the change of breast milk for common food is the most powerful exciting cause we might expect most cases of cholera infantum to succeed weaning, and that it might appear so often connected with, or to succeed weaning, as to acquire its vulgar name of weaning rash. As the disease depends then ~~so~~ so much more upon



the exciting cause, whose operations are not confined to the summer months, we should not expect it to be the so limited, as we find it when the predisposing cause acts most powerfully. Accordingly we find that the cases reported by Dr. Blair occurred at various periods from the early part of May till about the middle of November. One reason, why this disease does not occur here as frequently as in the autumnal months as in Scotland, is that the indisposing causes here act so powerfully, that the disease is developed in all who are obnoxious to it, before the end of summer and that those, who have resisted the predisposing and exciting causes during the summer months, will without difficulty resist the latter when the former no longer exist; For it can hardly be said, to exert here after the middle of September, so great is the difference between our summer and

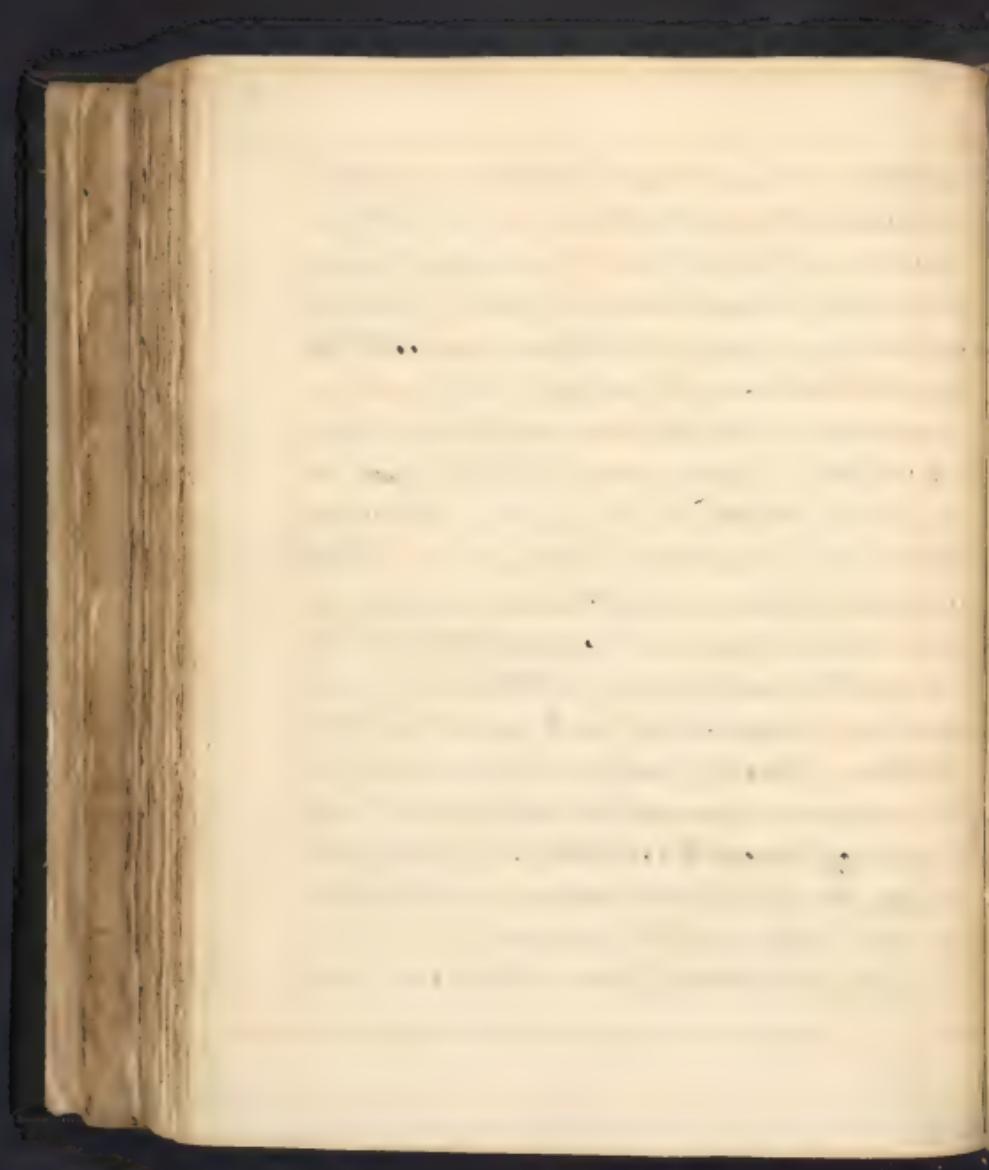


return. Treatment To impress one with the importance of thoroughly understanding the treatment of this disease, it is sufficient to examine the bills of mortality in our country cities and large towns. For notwithstanding the nature of the disease is as Dr. Chapman says, "a well understood and the treatment greatly improved; it still continues, even at this improved, and enlightened state of medical science, to destroy multitudes of infants and even in more favourable cases to prove in a high degree obstinate and distressing. The diversified appearance that cholera infantum assumes, is not less difficult to be distinguished than comprehended. It is sometimes connected with the animal Epidemics which occur in sickly countries, and at other times more familiarly recognized in the forms of Remittent and Intermittent fevers. It is pretty generally agreed by the physicians of the United States, and particularly

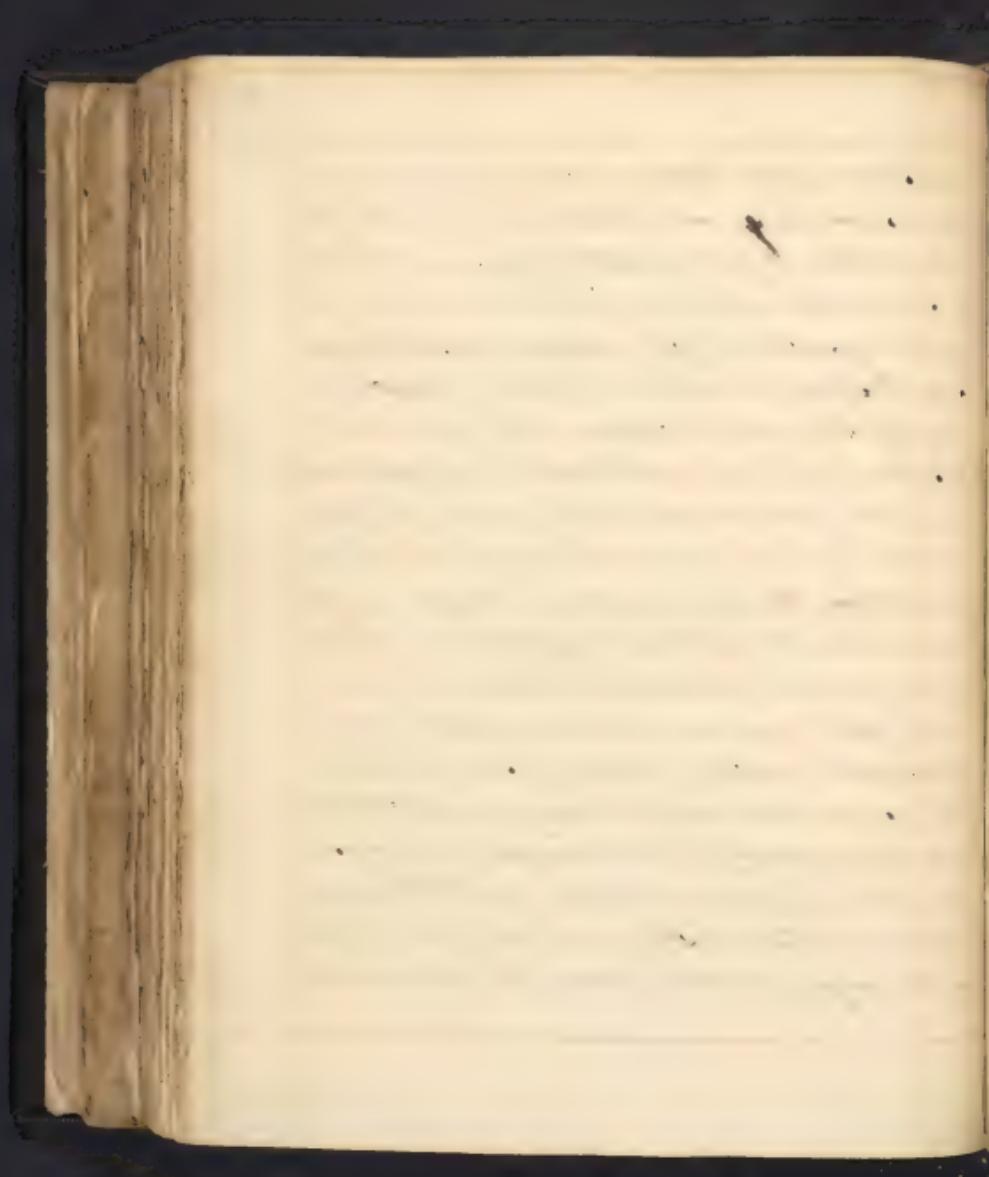


imprest on the minds of the students by Dr. Chapman's pupils that a retreat from an unhealthy situation, and particularly a change from the air of cities to some salubrious part of the adjacent country is one of the best means, both to prevent and to cure the disease. The evidence in favour of this opinion must be obvious, and accented by every one. But there is a large part of the community, upon whose circumstances in life, fortune has never smiled, and consequently, are prevented from embracing such advantages. In this case the best agent must be resorted to, of which the circumstances of the individual will admit. The first indication which presents itself in the cure of this disease is to evacuate the stomach and intestines of the accrid contents. In effecting this purpose, some difficulty occurs in the retreat, as to the choice of the means.

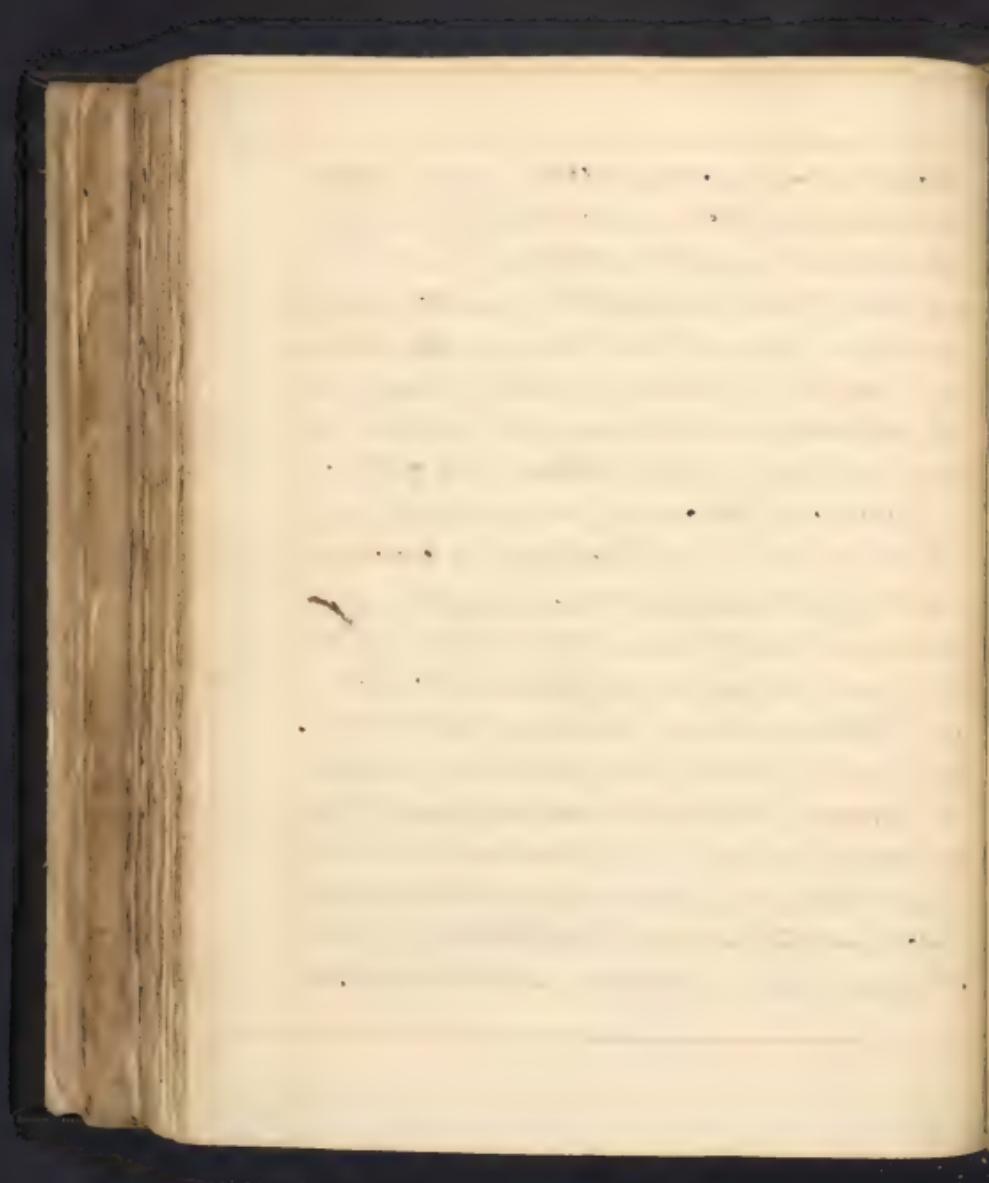
It is probable, that the cure can have as an evi-



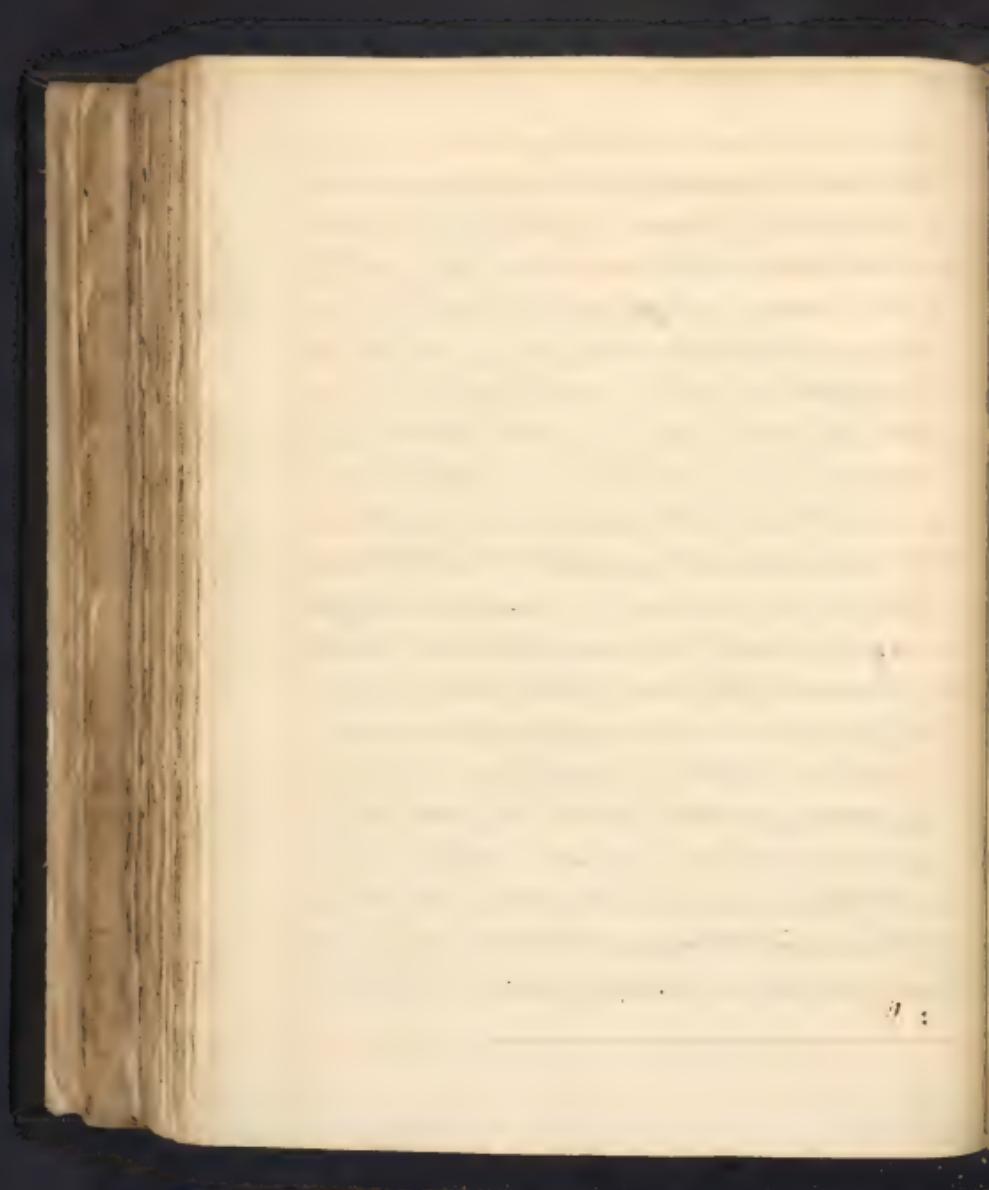
it, and balsom or balsam oil as a purgative, would answer very well. But when the stomach is in a state of great irritability, convulsed, and spontaneous vomiting has taken place, an emetic would be highly improper and dangerous. Before the administration of such a remedy, the violent action of the stomach should be quieted, or allowed to subside; and when it is ascertained, that all the offending matter has been evacuated by spontaneous vomiting, it may be improper to administer an emetic. Or if there be great loss of strength and the disease should have proceeded with great violence, producing pulsations of pulse and a sweating of heat from the extremities, an emetic would be very hazardous and attended probably with the most serious consequences. But it is stated by Dr. Darwin, that an emetic which soon ceases to operate will very frequently leave the stomach



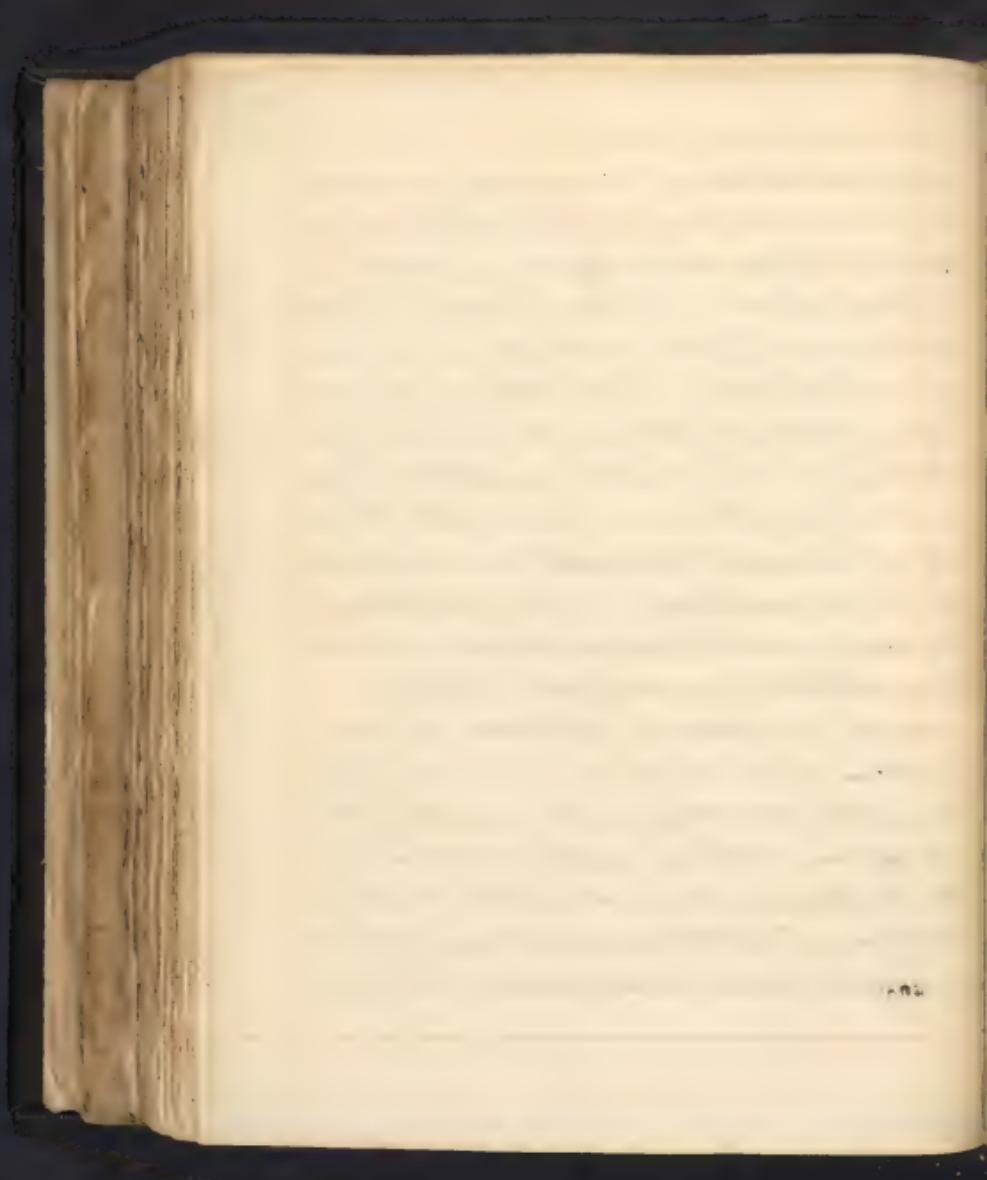
stronger than before, which he says is due to an accumulation of irritability during the stomach's inverted action. To believe any doubt on this subject, it would be proper, when it is found that the prime necessary in evacuating to administer a dose of either a silver calomel, the dose to be accommodated to the age of the patient and other circumstances. Calomel, particularly in bolus combined with opium, is recommended by Dr Chapman as being a very successful practice in doses of one eighth to one quarter of a grain of Opium and from one to three grains of Calomel divided into eight or ten powders, to be given every two or three hours. If this produce too frequent discharges the opium is to be increased. Cholera infantum being primarily a gastric disease such, sometimes, is the irritability of the stomach that no medicine will be retained.



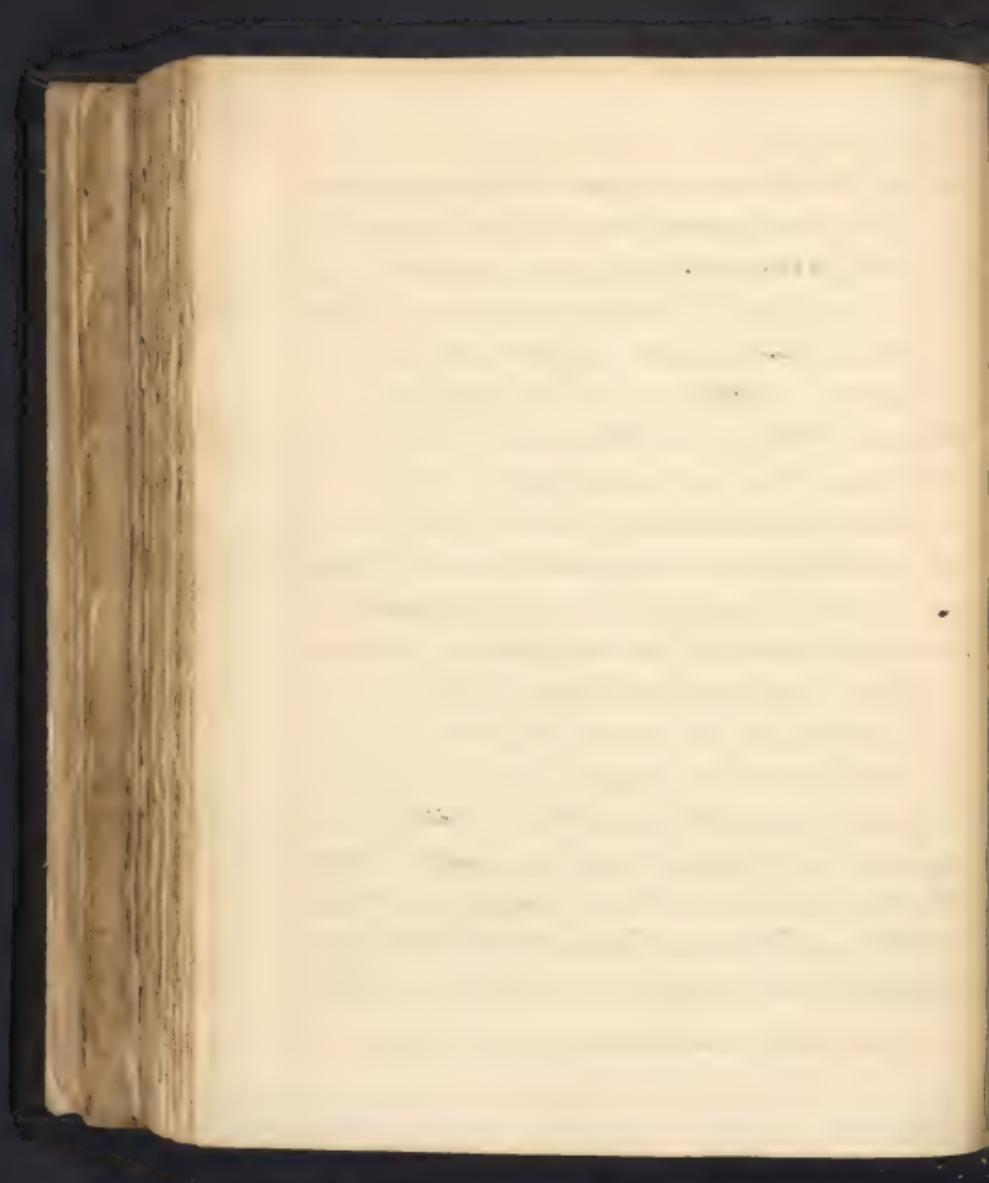
It then becomes necessary to calm the stomach and allay irritation by anodyne injections, by fomentations to the stomach and the warm bath, except however in cases of very small children, the combination of calomel and opium is thought to be preferable. Dr. Miller prefers it for several reasons. The first is, the ease with which it may be administered. The bulk is so small that it may be easily enveloped so as not only not swallow, but to be quite agreeable. The second reason is that the specific gravity of calomel renders it very difficult to be dislodged from the stomach, even by the most violent vomiting. The third is that when calomel and opium are combined in this way, they can be given in much larger doses, than they can separately as they are believed to soften and correct the powers of each other. Fourth which is the disease takes an fatal tendency, and there is reason to believe effusion in the



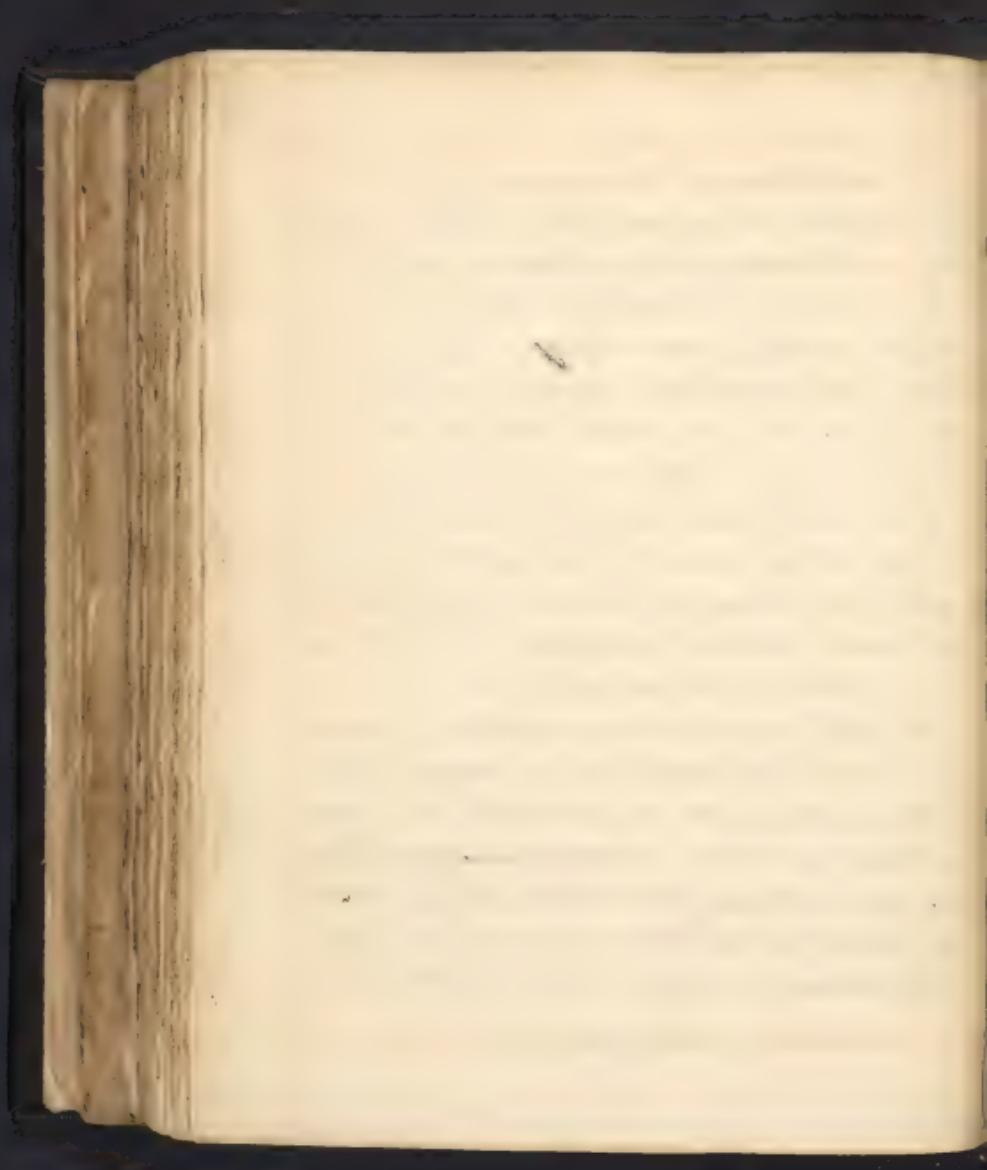
heat or destruction of the organization of the stomach and bowels, unless the fatal tumescence takes place at a very early period, it is the best calculated of all our remedies to arrest that tendency. Fifthly. Calomel when exhibited in small doses combined with opium, excites a strong absorbent action in the stomach and intestines. The metallic salts are said to possess more or less of the same power; and the activity of the absorption is found to be in proportion to the completeness of the evacuation previously made by the calomel alone, or other evacuating means. As absorption is generally increased by irritation, whether by means of the lancet or purgation. It is now pretty generally agreed among Physicians that calomel although gentle and safe in its operation is the most effectual and penetrating of all the medicines employed to cleanse the bowels. Sometimes the irrita-



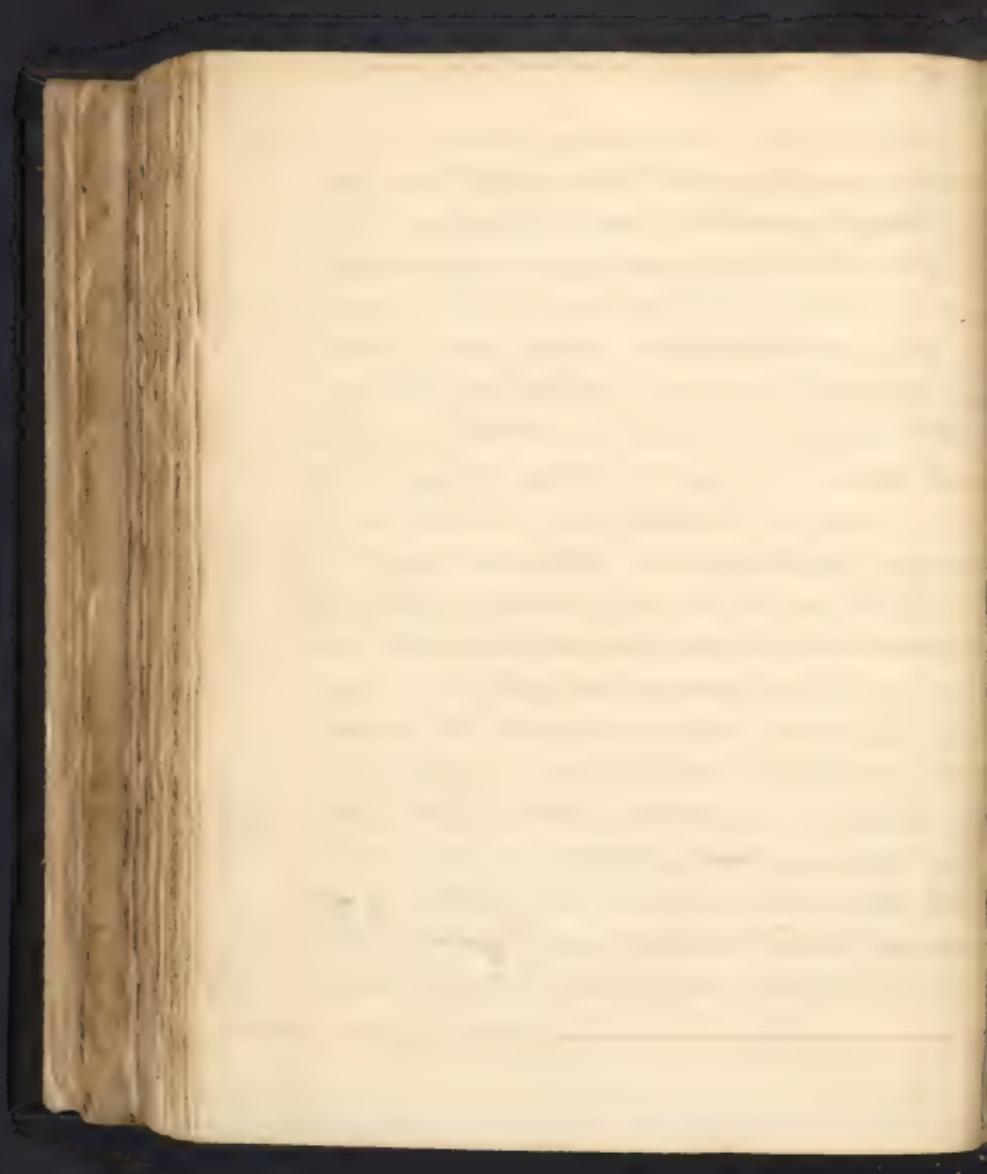
ility of the stomach is so great that violent vomiting takes place almost every minute, accompanied with thirst, accompanied and pain about the epigastric region with fever and quick pulse. It would be proper in such cases to evacuate the stomach with Siccacæ, which relieves it & the physician's determinate actions from that part to the service. But when there are a weak pulse, sinking in countenance, cold clammy sweats, eyes sunken and indicating a sinking condition of the system, we should avoid the emetic and resort to stimulants, such as are demanded in all bowel complaints attended with fever; after having prepared the stomach for the reception of Medicines, the effect of medicinal purges may be tried with some valuable advantage; especially when combined with siccacæ or opium salts. Notwithstanding these are other irritations in high repute that might be employed with tolerable success, yet the superior efficacy of mercury in such cases



many substances whether solids or a' in eff.
or descriptions, not easily removable by other purgatives, is well known to every physician, who has
had an opportunity to complain them. Its known
testimony in its favour is very numerous:
Indeed he seems to place almost his whole reli-
ance on it. He was induced to try it for the
first time in a hoarsly's cure by way of experiment
etc, since this can be say, "I have had the use
of my's & Salomel coincid. to many additional ca-
uses and now I have the firmest belief, that it
will prove effectual at a stage of the disease,
when no other medicine will. That I am con-
vinced with, would be attended with any perman-
ent benefit. But to collect the testimony of those
writers in favour of the use of Salomel in the bowel
complaints of children would be embolizing the opin-
ions of a multitude; And to cite authority, to establish
a point not contested, would be unnecessary.
In the advanced stage of cholera by Landau.



allum may be frequently be employed beneficially. Having evacuated all stool and offensive matter from the alimentary canal it is recommended to commence with small doses. Half a grain of allum in combination with a small portion of opium, to be gradually increased may be administered in a pill. The Siccum statum, combined with opium, has been advantageously employed of late. When only a troublesome diarrhoea remains, some of the restorative astringents may be tried with advantage. In addition to internal remedies it will often be advantageous and even necessary to have recourse to such external remedies as produce a stimulation to the surface and equal excitement. This is an indication of no small importance; and the most safe and efficacious means of accomplishing it are the warm bath and blisters. The excitement is often very unequal, the extremities being very cold, while there is a burning heat in and about the seat



of the disease. The warm bath is probably more speedy in its operation and more agreeable, but probably less efficient and less permanent than blisters. These may be applied to the stomach, abdomen, or extremitiees at different stages of the disease, according to circumstances.

When the stomach becomes too debilitated to digest food and too irritable to retain the ingesta, the alkaline preparations, combined with mild aromatic tonics are sometimes given with advantage. But cases of this kind frequently occur, in which no means accomplish our wishes, so well as the saltpeter water. Astringent injections are very beneficial, and in some cases seem to be our best remedy. The diet should be light and consist of liquid pharmaceutical preparations, sweetened with loaf sugar, to which some mild astringents may be added, when no febrile symptoms exist. The patient should be allowed only a small quantity of drink at a time, as they are

inclined to drink often, although this disease occurs at a season when little or no drink seems necessary for the comfort of the patient. It is however the less important in the management of it to attend to drink, especially where we see such great inequality in the excitement. The patient should be clothed in flannel, particularly the extremities. Such gotten in, are the views, I have adopted of the character, causes, and treatment of this disease. Should they be found accordant with your experience and observation, and the doctrines you have thereon elicited, I will hope, that this exposition of them, notwithstanding its defects, will meet your approbation.

Robt. T. Jones.

